PJP6000

60V N-Channel Enhancement Mode MOSFET

FEATURES

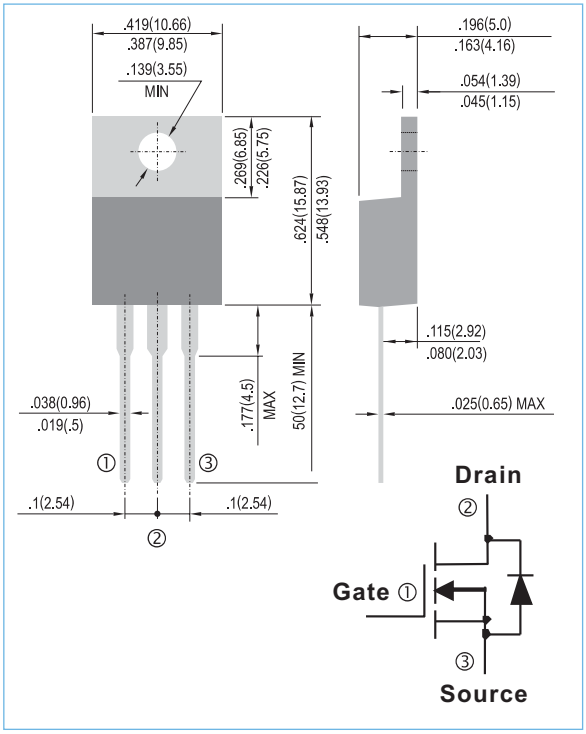
- $R_{DS(ON)}$, V_{GS}@10V,I_{DS}@30A=14mΩ

- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for Converters and Power Motor Controls
- Fully Characterized Avalanche Voltage and Current
- In compliance with EU RoHS 2002/95/EC directives

MECHANICALDATA

- Case: TO-220AB Molded Plastic
- Terminals : Solderable per MIL-STD-750,Method 2026
- Marking : P6000

TO-220AB Unit: inch (mm)



Maximum RATINGS and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	60	A
Pulsed Drain Current [1]	I_{DM}	210	A
Maximum Power Dissipation T_A=25°C T_A=75°C	P_D	90 53.5	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150	°C
Avalanche Energy with Single Pulse I_{AS}=37A, VDD=30V, L=0.3mH	E_{AS}	410	mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.4	°C/W
Junction-to Ambient Thermal Resistance(PCB mounted)[2]	$R_{\theta JA}$	62	°C/W

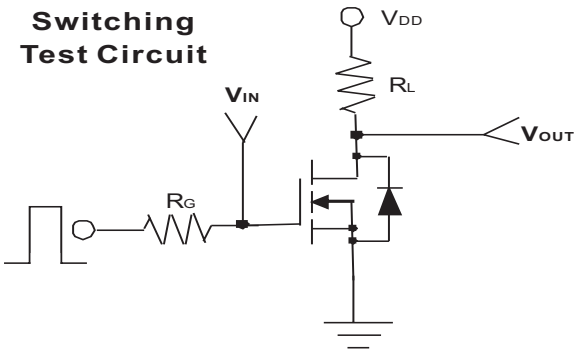
Note: 1. Maximum DC current limited by the package

PJP6000

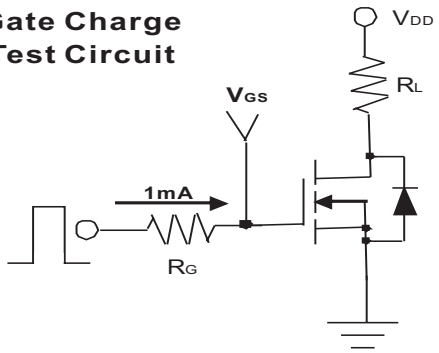
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	-	3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A	-	12	14	mΩ
		V_{GS}=10V, I_D=30A, Tc=125°C	-	-	26	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	uA
		V_{DS}=60V, V_{GS}=0V, Tc=125°C	-	-	10	
Gate Body Leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Forward Transconductance	g_{fS}	V_{DS}>$I_{D(ON)}$X$R_{DS(ON)max}$, I_D=15A	25	-	-	S
Dynamic						
Total Gate Charge	Q_g	V_{DS}=30V, I_D=30A V_{GS}=10V	-	40	-	nC
Gate-Source Charge	Q_{gs}		-	3.8	-	
Gate-Drain Charge	Q_{gd}		-	12	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V , R_L=15Ω I_D=2A , V_{GEN}=10V R_G=2.5Ω	-	14.6	20	ns
Turn-On Rise Time	t_r		-	14.2	18	
Turn-Off Delay Time	$t_{d(off)}$		-	40	60	
Turn-Off Fall Time	t_f		-	7.3	9.5	
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V f=1.0MHz	-	1480	-	pF
Output Capacitance	C_{oss}		-	190	-	
Reverse Transfer Capacitance	C_{rss}		-	135	-	
Source-Drain Diode						
Max. Diode Forward Current	I_s	-	-	-	60	A
Diode Forward Voltage	V_{SD}	I_S=30A , V_{GS}=0V	-	0.94	1.2	V

Switching Test Circuit



Gate Charge Test Circuit



PJP6000

Typical Characteristics Curves (T_A=25°C, unless otherwise noted)

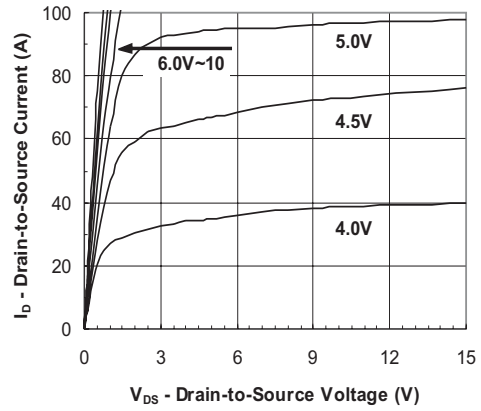


FIG.1- Output Characteristic

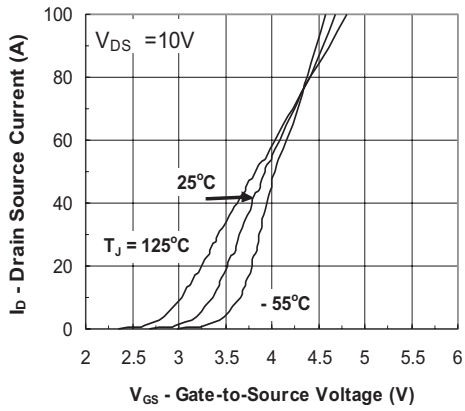


FIG.2- Transfer Characteristic

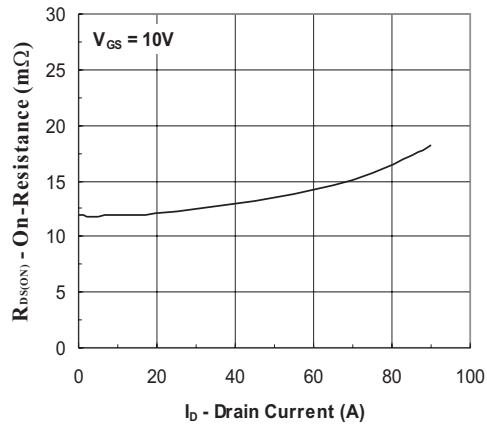


FIG.3- On Resistance vs Drain Current

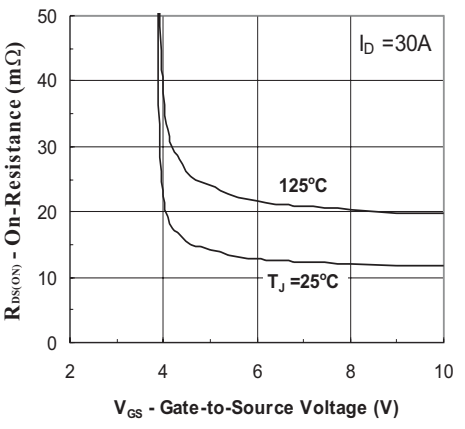


FIG.4- On Resistance vs Gate to Source Voltage

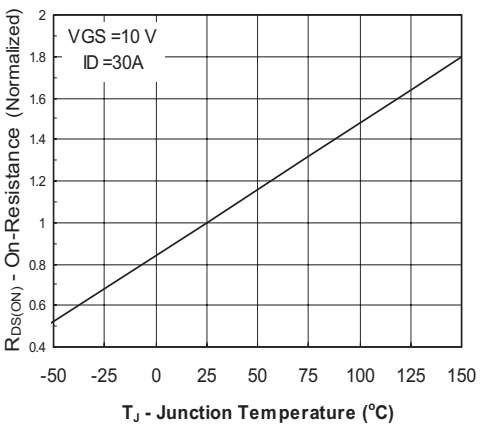


FIG.5- On Resistance vs Junction Temperature

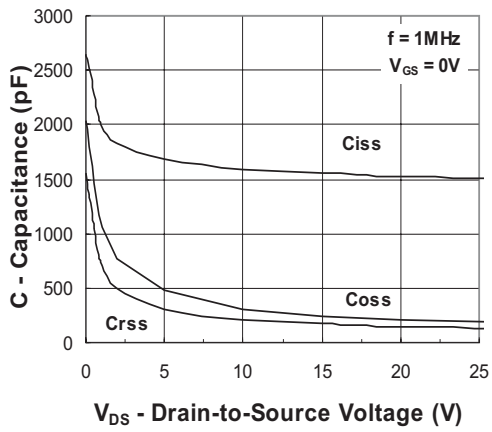


FIG.6 - Capacitance

PJP6000

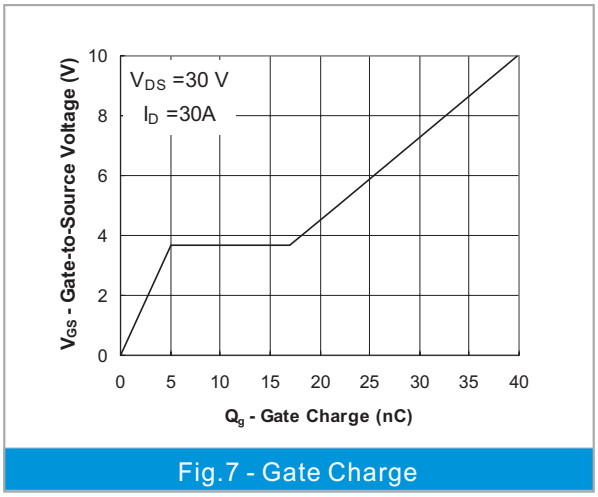


Fig.7 - Gate Charge

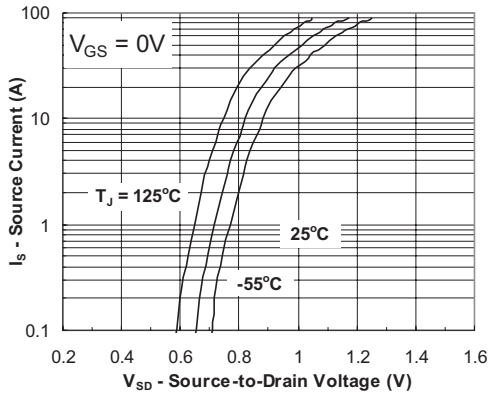


Fig.10 - Source-Drain Diode Forward Voltage

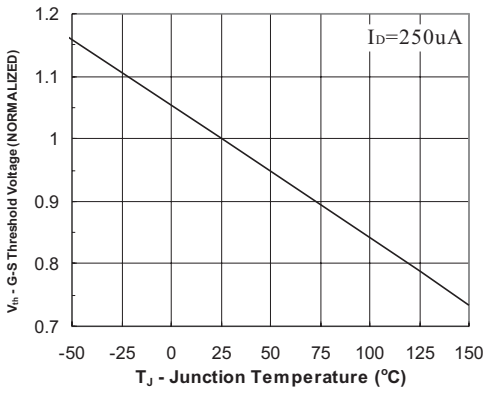


Fig.8 - Threshold Voltage vs Junction Temperature

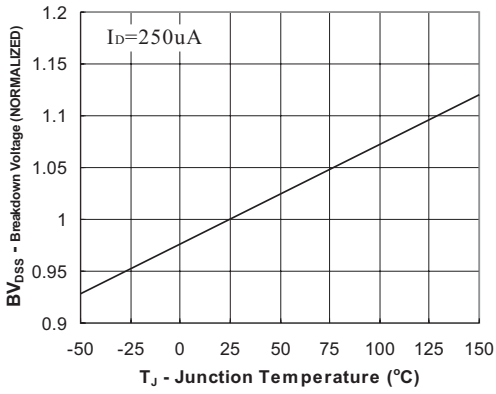


Fig.9 - Breakdown Voltage vs Junction Temperature

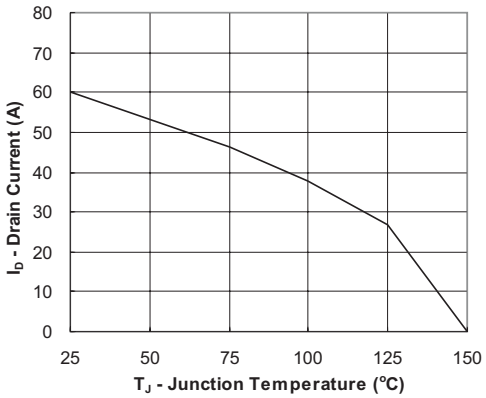


Fig.11 - Maximum Drain Current vs Junction Temperature

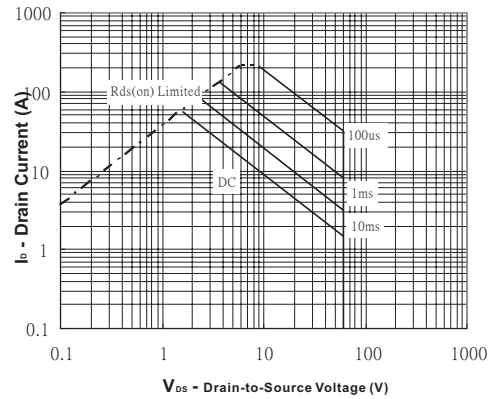


Fig.12 - Safe Operation Area